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EVALUATING THE SCHOLASTIC ACHIEVEMENT OF VISUALLY HANDICAPPED CHILDREN

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The curriculum of a school is essentially a description of the goals, intellectual and other, which children are expected to attain. Intrinsic to the educational process is the determination of the degree to which each child has attained the goals implied in the curriculum. This problem is common to the education of all children and several methods are commonly used to achieve this purpose. These include formal and informal ratings by teachers and written and oral tests which may be subjective or objective in form. All such methods are applicable to the evaluation of educational achievement of visually handicapped children.

When we examine the scholastic or intellectual goals set for children we find that these are many and varied. Involved are such things as acquisition of factual information, attainment of knowledge of principles, development of such abilities as generalizing, reasoning, problem solving, and development of general verbal and numerical skills. Attainment of some of these goals is more difficult to assess than is attainment of others and often we are forced to restrict our evaluation ~~to~~ of scholastic achievement primarily to such areas as factual knowledge, ability to state principles and use principles, knowledge of words, and ability to perform numerical operations. Tests of various kinds are useful for this purpose and many school systems commonly employ standardized achievement tests to achieve this end. Because of their widespread use, the present paper will concentrate on standardized achievement tests as a means of evaluating scholastic achievement of the visually

handicapped.

Generally speaking, use of standardized achievement tests to evaluate scholastic achievement is at best only a partial solution to this problem. They cover only part of the total school program. Based on national or regional educational goals, they are often inappropriate for evaluation of programs developed within a particular school system to meet community needs. Standards for scholastic achievement used with these tests are based upon national samples and may be unrealistically high or low depending upon various cultural factors existing within the population from which a given school draws its pupils. This latter problem is, of course, of great significance to the evaluation of scholastic achievement of visually handicapped children.

Use of standardized achievement tests for evaluating scholastic achievement of visually handicapped children dates from 1918. Lowenfeld (1955) mentions use of such tests as the Gray Oral Reading Check Tests, Metropolitan Achievement Tests, Myers-Ruch High School Progress Test and the various editions of the Stanford Achievement Tests. These latter tests are in greatest use today with five equivalent forms currently available in both Braille and large type from the American Printing House for the Blind.

Throughout the story of the use of standardized achievement tests with the visually handicapped there is found an underlying theme of frustration and doubt. Questions arising as to the meaning of individual test scores obtained from adapted tests have resulted in consistent frustration in efforts to apply them to the solution of common educational problems. Why should this be the case? The answer to this question lies in the fundamental nature of achievement tests as implied in the term "standardized".

Much of the usefulness of standardized achievement tests results from the fact that they provide a common frame of reference for evaluating scholastic achievement of children everywhere. This is accomplished by holding constant a number of variables

in the testing situation. Held constant are the test content (the actual test questions), the method by which the test is administered, the length of time allowed for each part of the test, and the method by which the test is scored. Meaning is given to scores on achievement tests by expressing them in terms of the average achievement of a national sample of school children for each month of the school year at each grade level. In other words, Sally's score on the Arithmetic Computation Test is not stated as 5 correct responses, but is stated to be the same as that of the average child in the sixth month of grade two. By expressing scores in this manner we can estimate whether Sally's achievement is below, equal to, or above that of the average child at her particular grade level.

As was indicated previously, standardized achievement tests are valuable because we are able to assess each child's achievement under approximately identical conditions. This gives us a common "yardstick" for comparing achievement of individual children, achievement of classes within the same school, and achievement between educational programs. The "inch marks" on our educational "yardstick" are established empirically by the number of test questions that will be answered correctly by the average child at each grade level for each month of the school year. Since these "inch marks" on our educational "yardstick" have been established under standard conditions of testing, if we change the testing conditions, the previously established "inch marks" are no longer true or valid. Adaptation of standized tests for use with visually handicapped children almost invariably involves changes in the standard conditions of testing which result in loss of validity or meaning for the scores obtained. Changes commonly made in standard testing conditions include changes in the time allotted for tests, changes in the methods for administration of tests, and changes in test content. Each of these changes influences the meanings of scores obtained by test use.

The first thing necessary in adapting a test, particularly to Braille, is to edit the test content. Many tests contain items that are unsuitable for visually

handicapped children, i.e. they require behavior not possible by blind children or the item contains information, usually in chart or graph form, that cannot be put into Braille. Therefore, it is necessary either to omit such items or to change their form substantially. Either of these solutions violates the standard conditions of the test. If we omit a test item we change the number of increments in our measuring instrument and the meaning of the test score in no longer the same. If a test item is changed, we still have the same number of increments of measurement, but the method of measurement has been changed with a subsequent loss of meaning.

Because of the slowness of Braille reading, it is necessary to change the standard time limits of tests for visually handicapped children. At the present, a somewhat arbitrary ratio of 2.5/1 is used as an adjustment factor. This ratio is based on the comparative reading speeds for Grade 1½ Braille and print reading as established many years ago (Hayes, 1937). Since tests are currently published in Grade 2 Braille this ratio may no longer be appropriate. In addition, the use of any single ratio for adjusting test scores, assumes that the ratio between Braille and print reading speed is the same at all grade levels and for all forms of material commonly presented in achievement tests. This, however, has never been established as a fact. The effect of time limits, particularly for the lower grades at any test level is to restrict the amount of opportunity that children have to attempt to answer test items. We do not know, at present, how the time extensions made for Braille reading effect the opportunity of visually handicapped children to attempt test items for the various types of tests. Therefore, we have a source of further ambiguity in interpreting a Braille test score. An identical problem exists in the case of large type tests.

Changing the administration of tests from written to oral form is sometimes done to overcome problems stemming from Braille reading. In the oral administration of tests, the examiner reads each question to the test group. Responses are made

by marking one of several possible answers on a Braille answer form. No time limits are imposed. Each child has the opportunity to attempt to answer every question. This procedure constitutes a departure from standard conditions in several directions. In the first place variation in test scores resulting from differences in reading ability are eliminated. Eliminating time limits and allowing each child to attempt every item results in inflation of test scores particularly for the lower grades at each test level. This has been demonstrated by research (Davis & Nolan, 1961) which has also ~~demonstrated~~ indicated that the correction factors suggested for this method lead to over correction.

As can be seen from the foregoing, present methods of adapting achievement tests for use by visually handicapped children result in a number of conditions which lead to ambiguity in the meaning of test scores. This situation seriously impairs the usefulness of results from achievement tests. This is particularly true when sporadic testing is the practice.

Many of the problems listed above can be by-passed if systematic testing is employed. This is easily possible since achievement tests commonly appear in several equivalent forms. A good procedure is to test at the end of each school year or to test at the beginning and end of each school year. The tests are scored as usual and the test raw scores expressed according to the sighted norms. However, these norms are not used directly to evaluate the child's performance. Instead, what is used is an ipsative norm which is a norm based upon the child's previous test performance. For example, if we test Joe at the beginning of the school year, we are not too concerned that his test score is above or below his grade placement because we know that this could occur as a result of the changes that have been made in the test or test procedure. We are concerned with the difference between this score and subsequent scores that Joe obtains. A test score obtained at the end of the school year should represent an increase in grade score equal to the length of time between tests if Joe's progress is that of average children. This

procedure can of course be extended to groups. Many educational programs have developed their own norms for evaluating scholastic achievement of visually handicapped children through use of modifications of this procedure. In order to use tests in this way, we assume that the changes introduced in the adaptations of achievement tests result in only constant errors in test score.

An opportunity to improve the usefulness of standardized achievement tests for visually handicapped children exists in the near future. The Test Department of Harcourt, Brace and World is currently developing a new edition of the Stanford Achievement Tests. They have agreed to cooperate in adapting the new edition for use with the visually handicapped. Adapting these tests at the time of their ~~standardization will provide an opportunity to overcome many of the problems exist-~~ing in current tests.

A major problem with current tests is that some items or test sections have been eliminated because of unsuitability for Braille. As was pointed out, this violates the standardization of the test with resulting loss of meaning for test scores. In the forthcoming edition of the Stanford Achievement Tests, the tests will be edited for use with the visually handicapped and then a separate set of norms will be developed based only on the test material to be used with this special group.

Changes in test administration to avoid problems arising from Braille reading also were mentioned as sources of error in adapted tests. The principal change is using oral methods of giving tests. For the forthcoming Stanford Achievement Tests, it is planned to study the effects of oral administration using the normative populations as subjects. This will give a very direct estimate of the influence this procedural change has on the norm scores. The data obtained will provide the means of developing a correction factor for use with oral administration or furnish sufficient evidence for a decision to abandon this procedure.

Changes in the time allowances for the tests will be made on a different basis

than before. Previously a crude ratio of Braille reading speed to print reading speed was used. To set time limits in the forthcoming tests, distributions of numbers of items attempted by the norm group for each grade will ~~shall~~ be obtained. The tests will then be given to representative groups of visually handicapped children in the appropriate grades. The distributions of items attempted for the visually handicapped children will be made to match the distributions for the normative group and time limits will be empirically estimated for each test on this basis.

Achievement tests currently available for use with visually handicapped children are applicable only for grades two through nine. Harcourt, Brace and World plan soon to develop a series of tests designed for use in grades ten through twelve. It is currently planned to adapt these to the visually handicapped using methods similar to those described above.

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